

What is claimed is:

1. A multi-functional flow control valve for a water treatment system, comprising:

a valve body having a water inlet port, a water outlet port and a effluent outlet and defining a flow channel therein for connecting with an inside and an outside of a filter element of the water treatment system, respectively;

a valve core placed inside the valve body and including a moving valve disk and a fixed valve disk of which head faces are aligned hermetically rotationally, the moving valve disk defining a through hole and two blind recesses therein and the fixed valve disk defining a plurality of through holes therein which are connected to the water inlet port, the water outlet port and the effluent outlet, respectively; and

a valve rod connecting with the moving valve disk; wherein

by rotating the moving valve disk, the through hole and the blind recesses in the moving valve disk are aligned with corresponding holes in the fixed valve disk for forming different liquid flow channels for realizing control of a flow and the through hole and the blind recesses in the moving valve disk and the plurality of through holes in the fixed valve disk are allocated on a same turning circle.

2. The multi-functional flow control valve for a water treatment system as claimed in claim 1, wherein

the valve body defines a leg flow channel in the flow channel thereof from the water inlet port to the filter element;

an ejector nozzle is fixed in the leg flow channel;

a brine inlet port is defined at an outlet port of the ejector nozzle for connecting with a brine tank of the water treatment system; and

the valve core includes the moving valve disk and the fixed valve disk of which the head faces are aligned hermetically rotationally; wherein

the moving valve disk is connected to the valve rod;

the fixed valve disk defines a through hole in a center of the head face thereof to connect with the effluent outlet of the valve body and six through holes around the center of the head face thereof, among which a through hole leads to the outside of the filter element, two through holes lead to the inside of the filter element, another through hole leads to the water outlet port, and the other two through holes lead to an inlet port and the outlet port of the ejector nozzle, respectively; and

the moving valve disk defines radially one blind recess in the head face thereof from a center to an edge and defines the other blind recess shaped as circular arc around the center in the head face thereof, and the through hole in the moving valve disk permanently opens to the water inlet port.

3. The multi-functional flow control valve for a water treatment system as claimed in claim 1, wherein

the valve body defines a leg flow channel in the flow channel thereof from the water inlet port to the filter element, and the leg flow channel is permanently connected with the water inlet port;

an ejector nozzle is fixed in the leg flow channel;

a brine inlet port is defined at an outlet port of the ejector nozzle for connecting with a brine tank of the water treatment system; and

the valve core includes the moving valve disk and the fixed valve disk of which the head faces are aligned hermetically rotationally; wherein

the moving valve disk is connected to the valve rod;

the fixed valve disk defines a through hole in a center of the head face thereof to connect with the effluent outlet of the valve body, and four through holes around the center of the head face thereof, among which a through hole leads to the outside of the filter element, two through holes lead to the inside of the filter element, and the other through hole leads to the water outlet port; and

the moving valve disk defines radially one blind recess in the head face thereof from a center to an edge and defines the other blind recess shaped as circular arc around the center in the head face thereof, and the through hole in the moving valve disk permanently opens to the water inlet port.